

Claims

We claim:

- 1 1. A configurable RAID subsystem, comprising:
 - 2 a user data array connected to a user application via a block I/O path; and
 - 3 a configuration array connected to a configuration application via the same
 - 4 block I/O path.
- 1 2. The configurable RAID subsystem of claim 1 wherein the user data array
2 processes user data access commands executed by the user application, and the
3 configuration application processes configuration commands, the user data access
4 commands and the configuration commands communicated to the user data array
5 and the configuration array respectively via the block I/O path.
- 1 3. The configurable RAID subsystem of claim 1 further comprising:
 - 2 block storage devices to physically store user data of the user data array.
- 1 4. The configurable RAID subsystem of claim 1 wherein the user data array
2 includes a dynamic identification assigned by the configuration array, and the
3 configuration array includes a static configuration identification.
- 1 5. The configurable RAID subsystem of claim 1 further comprising:
 - 2 means for assembling and executing a configuration write command in the
 - 3 configuration application;
 - 4 means for processing the configuration write command in the configuration
 - 5 array; and

6 means for returning status on the processing of the configuration write
7 command to the configuration application via the block I/O path.

1 6. The configurable RAID subsystem of claim 1 wherein the configuration
2 application reads a predetermined block of the configuration array application to
3 obtain an associated application identification.

1 7. The configurable RAID subsystem of claim 6 further comprising:

2 means for assembling and executing a configuration write command in the
3 configuration application, the configuration write command including a request to
4 read a configuration information data structure and the application identification;

5 means for processing the configuration write command in the configuration
6 array;

7 means for assembling and executing a configuration read command in the
8 configuration application, the configuration read command including the
9 application identification;

10 means for processing the configuration read command in the configuration
11 array; and

12 means for returning the requested configuration information data structure
13 and status to the configuration application.

1 8. A method for configuring a RAID subsystem, comprising:

2 processing user data access commands executed by a user application in a
3 user data array of the RAID subsystem connected to the user application by a block
4 I/O path; and

5 processing configuration commands executed by a configuration application
6 in a configuration array of the RAID subsystem connected to the configuration
7 application via the block I/O path.

1 9. The method of claim 8 further comprising:

2 storing user data of the user data array on block storage devices.

1 10. The method of claim 8 further comprising:

2 assigning a dynamic identification to the user data array by the configuration
3 array; and

4 assigning a static identification to the configuration array.

1 11. The method of claim 8 further comprising:

2 assembling and executing a configuration write command in the
3 configuration application;

4 processing the configuration write command in the configuration array; and

5 returning status on the processing of the configuration write command to the
6 configuration application.

1 12. The method of claim 8 further comprising:

2 reading a predetermined block of the configuration array by the
3 configuration application to obtain an associated application identification.

1 13. The method of claim 8 further comprising:

2 assembling and executing a configuration write command in the
3 configuration application, the configuration write command including a request to
4 read a configuration information data structure and the application identification;

5 processing the configuration write command in the configuration array;
6 assembling and executing a configuration read command in the
7 configuration application, the configuration read command including the
8 application identification;
9 processing the configuration read command in the configuration array; and
10 returning the requested configuration information data structure and status to
11 the configuration application.

1 14. The method of claim 8 further comprising:
2 receiving a configuration write commands in the configuration array;
3 locking associated internal data structures of the RAID subsystem;
4 processing the configuration write command;
5 unlocking associated internal data structures of the RAID subsystem; and
6 returning status to the configuration application upon completion of the
7 processing.

1 15. A configurable RAID subsystem, comprising:
2 a user data array for processing user data access commands executed by a
3 user application;
4 a configuration array for processing configuration commands executed by a
5 configuration application; and
6 a single block I/O path connecting the user data array to the user application
7 and the configuration array to the configuration application.

1 16. The configurable RAID subsystem of claim 15 wherein the user data array
2 includes a dynamic identification assigned by the configuration array, and the
3 configuration array includes a static configuration identification.

1 17. The configurable RAID subsystem of claim 15 further comprising:
2 a plurality of user data arrays each having an associated dynamic
3 identification assigned by the configuration array; and
4 a plurality of configuration applications each having an associated application
5 identification assigned by the configuration array.

1 18. The configurable RAID subsystem of claim 15 wherein the user application
2 and the configuration application execute only block I/O write and read commands
3 to access the user data array and the configuration array via the block I/O path.
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